

## CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. An interconnected HVAC (heating, ventilating, air conditioning) system and security alarm system comprising:

the HVAC system incorporating a wireless RF (radio frequency) control system using a selected RF frequency, modulation and set of protocols, including at least one wireless RF HVAC control having an RF transceiver for communicating with and controlling the HVAC system;

the security alarm system incorporating a wireless RF control system using the same selected RF frequency, modulation and a set of common protocols as the HVAC RF wireless control system, and including at least one wireless RF security control for communicating with and controlling the security alarm system;

wherein the common same RF frequency, modulation and set of common protocols provide interconnectivity and communication between the HVAC system and the security alarm system.

2. The system of claim 1, wherein the HVAC system is controllable by the at least one wireless RF security control.

3. The system of claim 1, wherein the security alarm system is controllable by the at least one wireless RF HVAC control.

4. The system of claim 1, wherein the security alarm system includes room occupancy sensors, and the room occupancy sensors of the security alarm system are used to control the HVAC system.

5. The system of claim 4, wherein a wireless RF control can instruct the HVAC system to use information from a temperature sensor from a room presently being occupied, as determined by the room occupancy sensors of the security alarm system.
6. The system of claim 1, wherein the HVAC system turns itself off when a smoke or fire detector of the security alarm system reports a fire event.
7. The system of claim 1, wherein the HVAC system turns itself on when a CO sensor of the security alarm system reports a CO event.
8. The system of claim 1, wherein an RF security control allows a user to select a security armed condition when the user is leaving the premises or retiring for the evening, and that command is communicated to the HVAC system to place the HVAC system in a setback, energy conserving mode.
9. The system of claim 1, wherein the HVAC system includes a plurality of zones and a plurality of wireless RF HVAC controls which comprise wireless RF thermostats, and each wireless RF thermostat can discover each other wireless RF thermostat, to permit adjustment and display of any one wireless RF thermostat's conditions from any of the other wireless RF thermostats.
10. The system of claim 1, wherein each wireless RF HVAC includes a GUI (graphical user interface).
11. The system of claim 1, wherein the HVAC system has a plurality of wireless RF controls comprising wireless RF thermostats, and each wireless RF thermostat permits display and control of any other wireless RF thermostat's conditions.
12. The system of claim 1, wherein the HVAC system includes at least one wireless RF temperature sensor.

13. The system of claim 1, wherein a wireless RF control includes a selection of at least one mode to send an RF signal to trigger a selected temperature setting for the selected mode.
14. The system of claim 1, including a wireless RF outdoor temperature sensor, wherein a wireless RF HVAC control can display the information of the wireless RF outdoor temperature sensor.
15. The system of claim 1, wherein a wireless RF HVAC control incorporates an easily programmable switch which can be activated one or more times to set back the temperature of a zone controlled by the wireless RF HVAC control for a period of time determined by the number of times the switch is depressed.
16. The system of claim 15, wherein a command generated by pressing of the easily programmable switch is communicated to the security system to arm the security system during the set back period.